

[54] **ANIONIC HYDROGELS BASED ON
HETEROCYCLIC N-VINYL MONOMERS**

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260/2.1 E

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[57] **ABSTRACT**

Novel anionic hydrogels, containing acidic groups, and their preparation are described. These novel hydrogels are stable, three-dimensional polymer networks, having good water permeability and mechanical properties. They are obtained by simultaneous polymerization and cross-linking, in the presence of a polymerization cata-

lyst, such as an organic peroxide, azobisisobutyronitrile or other free radical polymerization catalyst, of a mixture of (a) a heterocyclic monomer preferably an N-vinyl lactam, (b) a polymerizable acidic monomer, such as acrylic or methacrylic acid, sulfo-ethyl methacrylate or a sulfated or phosphated derivative of a hydroxyalkyl-acrylate or methacrylate and (c) a cross-linking agent, such as a glycol or polyglycol diacrylate or dimethacrylate and also, preferably, (d) at least one acrylic monomer capable of polymerizing to a very molecular weight, such as hydroxyethyl- or hydroxypropyl-acrylate or methacrylate, acrylamide or methacrylamide, or a lower alkyl acrylate or methacrylate; if desired there may also be present in the monomer mixture (e) other polymerizable ethylenically unsaturated monomers, which are copolymerizable with components (a), (b), (c) and (d). The thus obtained anionic hydrogels are useful for combining by reaction or complexing, with water soluble or dispersible materials having an opposite charge; such as basic or cationic agricultural chemicals (insecticides, herbicides, fungicides, plant growth regulators, etc.), germicides, pharmaceuticals, cosmetics, hormones, enzymes, flavors, fragrances, antiperspirants, metals and the like, both to recover such basic or cationic materials from an aqueous medium and for purifying water containing them, and also for the preparation of a complex or other combination of the anionic hydrogel with such materials which may be useful per se or from which the complexed or combined basic or cationic material may be slowly or controllably released.

10 Claims, No Drawings